Applied Radiation and Isotopes

Volume 56, 2002
List of Contents, Author, and Subject Indexes



APPLIED RADIATION AND ISOTOPES

EDITORS-IN-CHIEF

B. M. COURSEY

Ionizing Radiation Division, Building 245, C229, RADP, National Institute of Standards and Technology, 100 Bureau Drive, Gaithersburg, MD 20899-8460, U.S.A.

> Fax: +1 301 869 7682 E-mail: pamela.hodge@nist.gov

D. M. TAYLOR

Cardiff University, Department of Chemistry, c/o 17 Pant Poeth, Bridgend CF315BD Wales, U.K.

Fax: +44 1656 647 911

E-mail: davtay@globalnet.co.uk

EDITORS

- Institute of Experimental Physics, University of Debrecen, Pf. 81, 4010 Debrecen, Hungary. E-mail: J. CSIKAL csikai@ delfin.klte.hu
- J. J. M. DE GOEIJ, Delft University of Technology, Interfaculty Reactor Institute, Mekelweg 15, 2629 JB Delft, The Netherlands. E-mail: j.j.m.deGoeij@IRI.TUDelft.nl
- F. F. Knapp, Science and Technology Division, Mail Stop 6229, Building 4501, Oak Ridge National Laboratory, P.O. Box 2008, Oak Ridge, TN 37831-6229, U.S.A. E-mail: jkp@ornl.gov
- A. Kudo, Research Reactor Institute, University of Kyoto, Kyoto, Japan, E-mail: kudo@rri.kyoto-u.ac.jp
- P. MITCHELL, Department of Experimental Physics, National University of Ireland, Dublin (NUID), Belfield, Dublin 4, Republic of Ireland. E-mail: peter.mitchell@ucd.ie
- V. NAGY, Ionizing Radiation Division, Building 245, C229, RADP, National Institute of Standards and Technology, 100 Bureau Drive, Gaithersburg, MD 20899-8460, U.S.A. E-mail: vitaly.nagy@nist.gov
- V. W. Pike, Molecular Imaging Branch, National Institute of Mental Health, Building 1, Room B3-10, 1 Center Drive, Bethesda, MD 20892-0135, U.S.A. E-mail: victor.pike@nih.gov
- M. RIVARD, Department of Radiation Oncology, Tufts New England Medical Center, Tufts University School of Medicine, 750 Washington Street, #246, Boston, MA 02111, U.S.A. E-mail: mrivard@lifespan.org
- R. Schneider, Mail Stop 8, Geology and Geophysics Department, Woods Hole Oceanographic Institution, Woods Hole, MA 02543-1539, U.S.A. E-mail: rschneider@whoi.edu
- J. S. Schweitzer, 41 Silver Hill Road, Ridgefield, CT 06877, U.S.A. E-mail: schweitz@phys.uconn.edu
- B. Sowerby, Program Manager, Process, Design & Optimisation, CSIRO Minerals, PMB5, Menai, NSW 2234, Australia, Email: brian.sowerby@minerals.csiro.au
- T. Tominaga, Department of Chemistry, Faculty of Science, University of Tokyo, Bunkyo-ku, Tokyo, Japan
- L. I. Wiebe, Faculty of Pharmacy and Pharmaceutical Sciences, 3118 Pharmacy Center, University of Alberta, Edmonton, Canada T6G 2N8. E-mail: leonard.wiebe@ualberta.ca

© 2002 Elsevier Science Ltd. All rights reserved.

Author enquiries

For enquiries relating to the submission of articles (including electronic submission where available) please visit the Author Gateway from Elsevier Science at http://authors.elsevier.com. The Author Gateway also provides the facility to track accepted articles and set up e-mail alerts to inform you of when an article's status has changed, as well as detailed artwork guidelines, copyright information, frequently asked questions and more

Contact details for questions arising after acceptance of an articles, especially those relating to proofs, are provided after registration of an article for publication.

Frequency: Published monthly in 2 volumes of 6 issues

Publication information: Applied Radiation and Isotopes (ISSN 0969-8043), For 2002, volumes 56-57 are scheduled for publication. Subscription prices are available upon request from the Publisher or from the Regional Sales Office nearest you or from this journal's website (http://www.elsevier.com/locate/apradiso). Further information is available on this journal and other Elsevier Science products through Elsevier's website: (http://www.elsevier.com/locate/apradiso). Further information is available on this journal and other Elsevier Science products through Elsevier's website: (http://www.elsevier.com). Subscriptions are accepted on a prepaid basis only and are entered on a calendar year basis. Issues are sent by standard mail (surface within Europe, air delivery outside Europe). Priority rates are available upon request. Claims for missing issues should be made within six months of the date of dispatch.

Orders, claims, and product enquiries: please contact the Customer Support Department at the Regional Sales Office nearest you:
New York: Elsevier Science, PO Box 945, New York, NY 10159-0945, USA: phone: (+1) (212) 633 3730 [toll free number for North
American customers: 1-888-4ES-INFO (437-4636)]; fax: (+1) (212) 633 3680; e-mail: usinfo-f@elsevier.com
Amsterdam: Elsevier Science, PO Box 211, 1000 AE Amsterdam. The Netherlands; phone: (+31) 20 4853757; fax: (+31) 20 4853432; e-mail:

nlinfo-f@elsevier.com

nlinfo-flæ elsevier, com Tokyo: Elsevier Science, 9-15 Higashi-Azabu 1-chome, Minato-ku, Tokyo 106-0044, Japan; phone: (+81) (3) 5561 5033; fax: (+81) (3) 5561 5047; e-mail: info@elsevier.co.jp Singapore: Elsevier Science, 3 Killiney Road, #08-01 Winsland House I, Singapore 239519; phone: (+65) 6349-0200; fax: (+65) 6733 1510; e-mail: asianfo@elsevier.com.sg Rio de Janeiro: Elsevier Science, Rua Sete de Setembro 111/16 Andar, 20050-002 Centro, Rio de Janeiro - RJ, Brazil; phone: (+55) (21) 509 5340; fax: (+55) (21) 507 1991; e-mail: elsevier@campus.com.br [Note (Latin America): for orders, claims and help desk information, please contact the Regional Sales Office; in New York as listed above! contact the Regional Sales Office in New York as listed above]

USA mailing notice: Applied Radiation and Isotopes (ISSN 0969-8043) is published monthly in 2 volumes of 6 issues by Elsevier Science Ltd. (P.O. Box 211, 1000 AE Amsterdam, The Netherlands). Annual subscription price in the USA US\$ 2224 (valid in North, Central and South America), including air speed delivery. Periodical postage rate paid at Jamaica, NY 11431.

USA POSTMASTER: Send address changes to Applied Radiation and Isotopes, Publications Expediting Inc., 200 Meacham Ave, Elmont, NY 11632.

AIRFREIGHT AND MAILING in the USA by Publications Expediting Inc., 200 Meacham Avenue, Elmont, NY 11003.

CONTENTS OF VOLUME 56

Numbers 1 and 2

Proceedings of the Conference on Radionuclide Metrology and its Applications, ICRM'2001

Obituary B. M. Coursey and W. L. McLaughlin	1	Wilfrid Basil Mann
B. M. Coursey	3	Preface
Asp	ects of In	ternational Metrology
B. M. Coursey, R. Collé and J. S. Coursey	5	Standards of radium-226: from Marie Curie to the International Committee for Radionuclide Metrology
C. Michotte	15	Efficiency curve of the ionization chamber of the SIR
S	ource Pre	paration Techniques
V. Tsoupko-Sitnikov, J. L. Picolo, M. Carrier, S. Peulon and G. Moutard	21	A novel method for large-area sources preparation for the calibration of β - and α -contamination monitors
A. Martín Sánchez, M. J. Nuevo Sánchez, M. P. Rubio Montero and A. Méndez Vilas	31	Study of inhomogeneities in sources prepared for α -particle spectrometry using scanning probe microscopy
I. A. Kharitonov, M. A. Rasko, S. V. Sepman, E. E. Terechtchenko and A. M. Hejdelman	37	A source for measurement of the absolute intensities of $^{226}\mbox{Ra}$ gamma-radiation in equilibrium with decay products
A. G. Espartero, J. A. Suárez, M. Rodríguez and G. Piña	41	Radiochemical analysis of 93Zr
G. L. Cerutti and F. A. Iglicki	47	Development of simulated-gas standards
	Alpha	Spectrometry
A. Martin Sánchez, A. Fernández Timón and M. P. Rubio Montero	51	The effect of energy losses in α -particle sources on the shape of peaks in spectra obtained with wide-angle geometry
Zhichao Lin, Anna Berne, Beth Cummings, James J. Filliben and K. G. W. Inn	57	Competence of alpha spectrometry analysis algorithms used to resolve the ²⁴¹ Am and ²⁴³ Am alpha peak overlap
J. C. Hardy, V. E. Iacob, M. Sanchez-Vega, R. T. Effinger, P. Lipnik, V. E. Mayes, D. K. Willis and R. G. Helmer	65	Precise efficiency calibration of an HPGe detector: source measurements and Monte Carlo calculations with sub-percent precision
O. Sima and D. Arnold	71	Transfer of the efficiency calibration of Germanium gamma-ray detectors using the GESPECOR software
M. Korun	77	Measurement of the average path length of gamma-rays in samples using scattered radiation
Jean Morel, DeLynn Clark and ESARDA WG-NDA Members	85	Influence of nuclear data on uranium enrichment results obtained by XK_{α} spectral region analysis
N. Reguigui, J. Morel, H. Ben Kraiem and A. Mahjoub	93	Characterization of three digital signal processor systems used in gamma ray spectrometry
T. Vidmar and A. Likar	99	Automated construction of detector models for efficiency interpolation

Carlo method

105

Mauro S. Dias, Mauro N. Takeda

Pavel Dryak, Petr Kovar and Jiri Suran

and Marina F. Koskinas

in gamma-ray spectrometry

measurements in Marinelli beakers

Cascade summing corrections for HPGe spectrometers by the Monte

111 Determination of corrections to true summations of photons for

Pierino De Felice, Paola Angelini, Aldo Fazio and Marco Capogni

A national campaign for coincidence-summing correction in γ-ray spectrometry

Nuclear Decay Data

M. P. Unterweger

Hiroshi Miyahara, Nobuo Hayashi, Kazuo Fujiki, Norio Takeuchi and Yoshio Hino

José U. Delgado, Jean Morel and Michel Etcheverry

G. Wermann, D. Alber, W. Pritzkow, G. Riebe, J. Vogl and W. Görner

A. Grau Malonda and A. Grau Carles

Estela M. O. Bernardes, José U. Delgado, Luiz Tauhata, Carlos J. da Silva, Akira Iwahara, Roberto Poledna and Anselmo S. Paschoa

Hiroshi Miyahara, Atsushi Yoshida, Gatot Wurdiyant, Hideaki Nagata and Nada Marnada

Carlos J. da Silva, José U. Delgado Akira Iwahara, Luiz Tauhata, Roberto Poledna and Rex N. Alves

A. Luca, S. Sepman, K. Iakovlev, G. Shchukin, M. Etcheverry and J. Morel

Marie-Martine Bé, Eckart Schönfeld and Jean Morel

V. M. Gorozhankin, N. Coursol, E. A. Yakushev, Ts. Vylov and C. Briançon 125 Half-life measurements at the National Institute of Standards and Technology

131 Determination of the emission probabilities of the principal γ -rays for 134 Cs to a high precision

137 Measurements of photon emission probabilities from the decay of ²²⁶Ra and daughters

145 Determination of the β⁻ branching ratio of ⁶⁴Cu by mass spectrometric investigations of the decay products in neutron transmuted copper

153 Half-life determination of 40K by LSC

157 ^{166m}Ho: a multi-γ standard for the calibration of Ge spectrometers

163 Determination of precise gamma-ray emission probabilities for ⁸⁸Rb

169 Absolute determination of activity per mass and half-life measurements of ¹⁵²Eu

173 Emission probabilities of the KX-rays following the decay of ²³⁷Np in equilibrium with ²³³Pa

181 Evaluation of 169Yb decay data

189 New features of the IC(4) code and comparison of internal conversion coefficient calculations

Radionuclide Metrology Techniques

L. Johansson, G. Sibbens, T. Altzitzoglou and B. Denecke

J. D. Keightley and G. C. Watt

E. García-Toraño, L.Rodríguez Barquero and M. Roteta

E. Schönfeld, H. Janssen, R. Klein,
 J. C. Hardy, V. Iacob, M. Sanchez-Vega,
 H. C. Griffin and M. A. Ludington

R. Collé and B. E. Zimmerman

D. Stanga, J. L. Picolo, N. Coursol, K. Mitev and I. Moreau

A. Švec and H. Schrader

E. Leblanc, P. de Marcillac, N. Coron, J. Leblanc, M. Loidl, J. F. Metge and J. Bouchard 199 Self-absorption correction in standardisation of ²⁰⁴Tl

205 Digital coincidence counting (DCC) and its use in the corrections for out-of-channel gamma events in $4\pi\beta$ - γ coincidence counting

211 Standardization of ¹³⁴Cs by three methods

215 Production of Co-60 sources for high-accuracy efficiency calibrations of gamma-ray spectrometers

223 A dual-compensated cryogenic microcalorimeter for radioactivity standardizations

231 Analytical calculations of counting losses in internal gas proportional counting

237 Fitting methods for constructing energy-dependent efficiency curves and their application to ionization chamber measurements

245 A new absolute method for the standardization of radionuclides emitting low-energy radiation

Chun Guang Yan, Qi Lian, Wei Li and Jian zhong Ni	253	An improvement of uncertainty in activity standardization with efficiency tracer technique
Jyi-Lan Wuu, Ming-Chen Yuan, Shi-Hwa Su and Wen-Son Hwang	261	The alpha and beta emitter measurement system in INER
Miroslav Havelka, Pavel Auerbach and Jana Sochorová	265	Software coincidence counting
J. Bouchard	269	A new set of electronic modules (NIM standard) for a coincidence system using the pulse mixing method
Tae Soon Park, Jong Man Lee and Han Yull Hwang	275	Standardization of ¹⁵² Eu and ⁸⁸ Y
A. Chyliński, T. Terlikowska-Droździel, T. Radoszewski and R. Broda	281	Multi-method of standardization of radionuclides with "triangular scheme" of disintegration

Liquid Scintillation Counting Techniques

285 Study of the influence of the LS-cocktail composition for the

R. Broda, K. Maletka, T. Terlikowska

and P. Cassette		standardisation of radionuclides using the TDCR model
E. Günther	291	Determination of the 32P activity in angioplastic balloons by LSC
G. García and A. Grau Malonda	295	The influence of stopping power on the ionisation quench factor
B. R. S. Simpson	301	Radioactivity standardization in South Africa
HY. Hwang, J. H. Park, T. S. Park, J. M. Lee, Y. H. Cho, J. I. Byun, O. Choi, JS. Jun, M. H. Lee and C. W. Lee	307	Development of MCTS technique for 3-PM liquid scintillation counting
	Li	ife Sciences
Brian E. Zimmerman, Jeffrey T. Cessna and Michael P. Unterweger	315	The standardization of $^{188}\text{W}/^{188}\text{Re}$ by $4\pi\beta$ liquid scintillation spectrometry with the CIEMAT/NIST ^3H -standard efficiency tracing method
M. Baker, G. A. Bass and M. J. Woods	321	Calibration of the NPL secondary standard radionuclide calibrator for ¹²⁵ I seeds used for prostate brachytherapy
D. H. Woods, M. I. Baker, J. D. Keightley, L. J. Keightley, J. L. Makepeace, A. K. Pearce, A. P. Woodman, M. J. Woods, S. A. Woods and S. Waters	327	Standardisation of ¹¹ C
R. Collé	331	Activity characterization of pure-β-emitting brachytherapy sources
Jeffrey T. Cessna	337	The measurement of activity contained in a $^{32}\mathrm{P}$ stainless-steel stent by destructive assay
D. K. Tyler, M. Baker and M. J. Woods	343	NPL secondary standard radionuclide calibrator. Syringe calibration factors for radionuclides used in nuclear medicine
Maria Sahagia, Anamaria Cristina Razdolescu, E. L. Grigorescu, A. Luca and C. Ivan	349	Precise measurement of the activity of $^{186}\mathrm{Re},^{188}\mathrm{Re}$ radiopharmaceuticals
E. Günther	357	What can we expect from the CIEMAT/NIST method?
A. Iwahara, A. E. de Oliveira, L. Tauhata, C. J. da Silva, C. P. G. da Silva, A. M. S. Braghirolli and R. T. Lopes	361	Performance of dose calibrators in Brazilian hospitals for activity measurements

Low Level Measurements

	LOW LC	et Measurements
L. R. Karam, L. Pibida and C. A. McMahon	369	Use of resonance ionization mass spectrometry for determination of Cs ratios in solid samples
M. Schwaiger, F. Steger, T. Schroettner and C. Schmitzer	375	A ultra low level laboratory for nuclear test ban measurements
Zhongyu Wu, Kenneth G. W. Inn, Zhichao Lin, Ciara A. McMahon and Lisa R. Karam	379	NIST radiochemistry intercomparison program: a summary of four- year performance evaluation study
M. Köhler, W. Preuße, B. Gleisberg, I. Schäfer, T. Heinrich and B. Knobus	387	Comparison of methods for the analysis of ²²⁶ Ra in water samples
F. V. Tomé, M. P. Blanco Rodriguez and J. C. Lozano	393	Study of the representativity of uranium and thorium assays in soil and sediment samples by alpha spectrometry
Peter N. Johnston, Mikael Hult and Timotheos Altzitzoglou	399	Measurement of low levels of ²⁶ Al from meteorite samples
Dirk Arnold, Stefan Neumaier and Octavian Sima	405	Deep underground gamma spectrometric measurement of $^{26}\mathrm{Al}$ in meteorite samples
L. Tauhata, M. E. C. Vianna, A. E. de Oliveira, A. C. M. Ferreira and C. C. S. da Conceição	409	Metrological capability of the Brazilian laboratories of analyses of radionuclides in environmental samples
	Inte	rcomparisons
M. J. Woods, D. H. Woods, S. A. Woods, L. J. Husband, S. M. Jerome, C. Michotte, G. Ratel, M. Crespo, E. Garcia-Torano, L. Rodriguez, A. Luca, B. Denecke, G. Sibbens, J. Morel, M. Etcheverry, D. Santry, H. Janssen, E. Schönfeld and U. Schötzig	415	Standardization and decay data of ²³⁷ Np
Yoshio Hino	421	Results from APMP comparisons on radioactivity measurements of $^{58}\text{Co.}^{88}\text{Y}$ and ^{166m}Ho
Ming-Chen Yuan, Jeng-Hung Lee and Wen-Song Hwang	429	The absolute counting of ^{166m} Ho, ⁵⁸ Co and ⁸⁸ Y
E. L. Grigorescu, Anamaria Cristina Razdolescu, Maria Sahagia, A. Luca, C. Ivan and G. Tanase	435	Standardization of ¹⁵² Eu
Marina F. Koskinas, Kátia A. Fonseca and Mauro S. Dias	441	Disintegration rate measurement of a ¹⁵² Eu solution
T. Altzitzoglou, B. Denecke, L. Johansson and G. Sibbens	447	Standardisation of ⁸⁹ Sr using three different methods
T. E. Sazonova, A. E. Kochin, N. I. Karmalitsyn, S. V. Sepman, A. V. Zanevsky and T. I. Shilnikova	453	Standardization of ²⁰⁴ Tl and ⁸⁹ Sr at VNIIM
P. A. L. Cruz, J. S. Loureiro and E. M. O. Bernardes	457	Standardization of a $^{89}\mathrm{Sr}$ solution from a BIPM intercomparison using a liquid scintillation method
Anamaria Cristina Razdolescu, Maria Sahagia, Ph. Cassette, E. L. Grigorescu, A. Luca and C. Ivan	461	Standardization of *9Sr
I. Csete, L. Szücs and A. Zsinka	467	Standardization of 89Sr at the National Office of Measures

Number 3

Bert M. Coursey and David M. Taylor

471 Editorial

Radiochemistry and Radionuclide Applications

Shizuko Ambe, Shigeko Sekido, Takuo Ozaki and Isamu Yamaguchi 473 Uptake of trace elements by rice plants inoculated with Pyricularia oryzae

Radiation Sources and Applications

Kuei-Hua Lin, Chao-Yuan Huang, Jao-Perng Lin and Tieh-Chi Chu 477 Surface dose with grids in electron beam radiation therapy

Shantanu Roy, Faical Larachi, M. H. Al-Dahhan and M. P. Duduković 485 Optimal design of radioactive particle tracking experiments for flow mapping in opaque multiphase reactors

Technical note

Sung-Yen Lin, Tieh-Chi Chu, Jao-Perng Lin and Chao-Yuan Huang 505 Monte Carlo simulation of surface percent depth dose

Synthesis of Labelled Compounds

Ralf Schirrmacher, Esther Nesseler, Wilhelm Hamkens, Uta Eichhorn, Mathias Schreckenberger, Bernd Kaina and Frank Rösch

An approach to the evaluation of the activity of the DNA repair enzyme O⁶-methylguanine-DNA-methyl-transferase in tumor tissue in vivo: syntheses of 6-benzyloxy-9-(2-[¹⁸F]fluoroethyl)-9H-purin-2-yl-amine and 6-benzyloxy-7-(2-[¹⁸F]fluoroethyl)-7H-purin-2-yl-amine

K. Hamacher, Th. Hirschfelder and H. H. Coenen

519 Electrochemical cell for separation of [18F]fluoride from irradiated 18Owater and subsequent no carrier added nucleophilic fluorination

Radioactivity and Radiation Measurements

Ronald O. Rahn, Henry M. Gerstenberg and Gerard A. Vavrina

525 Dosimetry of ionizing radiation using an iodide/fodate aqueous solution

P. P. Ember, T. Belgya and G. L. Molnár

513 Improvement of the capabilities of PGAA by coincidence techniques

Y. Kojima, M. Asai, M. Shibata, K. Kawade, A. Taniguchi, A. Osa, 543 Decay scheme of ¹²⁶La isomers

M. Koizumi and T. Sekine
A. A. Abdel-Fattah

557 Identification and dose assessment of irradiated cumin by EPR spectrometry

G. Pedroza, W. M. de Azevedo, H. J. Khoury and E. F. da Silva Jr. 563 Gamma ray detection using sol-gel Glass doped with lanthanide ions

Technical note

R. J. Gehrke, J. D. Baker and C. L. Riddle

567 Feeding of the ²³²Th levels from the decay of ²³⁶U

Events

569

Number 4

Radiochemistry and Radionuclide Applications

Technical note

S. Banerjee, S. Lahiri, S.B. Manohar and A. Ramaswami

571 Separation of ⁴⁸V and ^{48,49}Cr in ⁷Li irradiated Sc₂O₃ target by liquid-liquid extraction

J. Adam, A. Balabekyan, V.S. Pronskikh,

Radiation Sources and Applications

²⁵²Cf: the potential for activation analysis of selected medium-weight A.E. Pillay and heavy elements in the limited neutron flux of a partially depleted 50 μg source 581 Model 3500 125I brachytherapy source dosimetric characterization Robert E. Wallace Ali S. Meigooni, Maung M. Yoe-Sein, 589 Determination of the dosimetric characteristics of InterSource 125 Iodine brachytherapy source Awni Y. Al-Otoom and Keith T. Sowards 601 Ali Ishakoğlu and A. Filiz Baytaş Measurement and evaluation of saturations for water, ethanol and a light non-aqueous phase liquid in a porous medium by gamma attenuation

Radioactivity and Radiation Measurements

Determination of the cross section for nuclear reactions in complex

607

V.G. Kalinnikov and J. Mrázek		nuclear decay chains
A. Endo, H. Noguchi, Su. Tanaka, Y. Kanda, Y. Oki, T. Iida, K. Sato and S. Tsuda	615	Particle size analysis of radioactive aerosols formed by irradiation of argon using 65 MeV quasi-monoenergetic neutrons
Jiawei Sheng, Kohei Kadono, Yasushi Utagawa and Tetsuo Yazawa	621	X-ray irradiation on the soda-lime container glass
H. Niu, L.G. Yuan, W.T. Chou, J.H. Liang and SC. Wu	627	A fast automatic RBS/w channeling system for damage depth profiling
Technical note Isabel García-Orellana and Manuel García-León	633	An easy method to determine ²¹⁰ Po and ²¹⁰ Pb by alpha spectrometry in marine environmental samples

and Manuel Garcia-Leon		marite chynolitettal samples		
	Nucle	ear Geophysics		
S. Bouhlassa and A. Aiachi	637	Groundwater dating with radiocarbon: application to an aquifer under semi-arid conditions in the south of Morocco (Guelmime)		
B. Zmazek, M. Živčić, J. Vaupotič, M. Bidovec, M. Poljak and I. Kobal	649	Soil radon monitoring in the Krško Basin, Slovenia		

Number 5

Radiochemistry and Radionuclide Applications

Hiroyoshi Inoue	659	Transport of ¹²⁵ I and ³⁶ Cl across an anion-exchange paper membrane
Gjermund Henriksen, Per Hoff and Roy H. Larsen	667	Evaluation of potential chelating agents for radium
H. Herzog, L. Tellmann, S.M. Qaim, S. Spellerberg, A. Schmid and H.H. Coenen	673	PET quantitation and imaging of the non-pure positron-emitting iodine isotope $^{124}\mathrm{I}$
Y. Albinsson, C. Ekberg, S. Holgersson, AM. Jakobsson, A. Lendgren and G. Skarnemark	681	A method for preparation and purification of ²³⁴ Th

Radiation Sources and Applications

S. Kastleiner, S.M. Qaim, F.M. Nortier, G. Blessing, T.N. van der Walt and H.H. Coenen	685	Excitation functions of 85 Rb(p,xn) 85m,g,83,82,81 Sr reactions up to 100MeV : integral tests of cross section data, comparison of production routes of 83 Sr and thick target yield of 82 Sr
Sun Oh Cho, Min Kim, Byung Cheol Lee, Young Uk Jeong, In-su Cha and Jeong-sik Choi	697	A compact low-energy electron beam irradiator

Radioactivity and Radiation Measurements

K. Abbas, F. Simonelli, F. D'Alberti, M. Forte and M.F. Stroosnijder	703	Reliability of two calculation codes for efficiency calibrations of HPGe detectors
C.J. Evans and Q.B. Mutamba	711	The use of associated particle timing based on the $D\!+\!D$ reaction for imaging a solid object
J.W. Mictelski, A.S. Baeza, J. Guillen, M. Buzinny, N. Tsigankov, P. Gaca, M. Jasińska and E. Tomankiewicz	717	Plutonium and other alpha emitters in mushrooms from Poland, Spain and Ukraine
Gongping Li, Zhongsheng Pu, Xiangzhong Kong, Feng Zhang and Xuebin Zhu	731	Cross section measurements for $(n, 3n)$ reactions induced by 14.8 MeV neutrons
	Nucle	ear Geophysics
Jianjun Shi, Jiangfeng Guo and Hui Chen	735	Dynamics of 95Zr in the rice/water/soil system
R.N. dos Santos, L.S. Marques and F.B. Ribeiro	741	Determination of uranium concentrations and activity ratios in silicates by alpha spectrometry: application to the volcanic rocks from the Trindade and Martin Vaz Islands (Brazil)
Yukihisa Sanada, Takeshi Matsunaga, Nobuyuki Yanase, Seiya Nagao, Hikaru Amano, Hideshige Takada and Yuri Tkachenko	751	Accumulation and potential dissolution of Chernobyl-derived radio- nuclides in river bottom sediment
	1	Number 6
Editorial	7(2	A month and book objection
David M. Taylor	763	A moral and legal obligation
Radiochemi	stry an	d Radionuclide Applications
X.K. Wang, W.M. Dong, G. Wang and Z.Y. Tao	765	Sorption and desorption of Co(II) on alumina: mechanisms and effect of humic substances
H. Rodig, P. Brust, J. Römer, H. Kasch, R. Bergmann, F. Füchtner, J. Steinbach and B. Johannsen	773	Distribution of estrone sulfatase in rat brain determined by in vitro autoradiography with 16α -[¹⁸ F]fluoroestradiol-3,17 β -disulfamate
Vladimir Zaichick and Margaret Tzaphlidou	781	Determination of calcium, phosphorus, and the calcium/phosphorus ratio in cortical bone from the human femoral neck by neutron activation analysis
Radia	tion So	urces and Applications
P. Oropesa, R. Serra, S. Gutiérrez and A.T. Hernández	787	A procedure for the standardization of gamma reference sources for quality assurance in activity measurements of radiopharmaceuticals
Gulten Atun, Binay Bilgin and Ayben Kilislioglu	797	Kinetics of isotopic exchange between strontium polymolybdate and strontium ions in aqueous solution
Ruqing Wang and Ron S. Sloboda	805	Monte Carlo dose parameters of the BrachySeed model LS-1 ¹²⁵ l brachytherapy source
S.S. Ishchenko, I.P. Vorona, S.M. Okulov and N.P. Baran	815	¹³ C hyperfine interactions of CO ₂ in irradiated tooth enamel as studied by EPR

by EPR

and N.P. Baran

- S. Sudár, F. Cserpák and S.M. Qaim

 821 Measurements and nuclear model calculations on proton-induced reactions on ¹⁰³Rh up to 40 MeV: evaluation of the excitation function of the ¹⁰³Rh(p,n)¹⁰³Pd reaction relevant to the production of the therapeutic radionuclide ¹⁰³Pd

 G. Cicognani, E. Escoffier, G.M. Guadalupi,

 L. Pallottini and M. Rogante

 823 Investigation by γ-ray diffraction of the crystalline quality of GaAs and InP single crystals
- M. Maučec and R.J. de Meijer

 837 Monte Carlo simulations as a feasibility tool for non-metallic landmine detection by thermal-neutron backscattering

Synthesis of Labelled Compounds

Efficient synthesis of 2-bromo-1- $[^{18}F]$ fluoroethane and its application in the automated preparation of ^{18}F -fluoroethylated compounds S. Comagic, M. Piel, R. Schirrmacher, 847 S. Höhnemann and F. Rösch Uptake of 99mTc tetrofosmin in lymphoma cell lines: a comparative Hueisch-Jy Ding, Yu-Chien Shiau, Shih-Chuan Tsai, 853 study with 99mTc sestamibi Jhi-Joung Wang, Shung-Tai Ho and Albert Kao Synthesis and biodistribution of a new 99mTc nitrido complex as a JunBo Zhang, XueBin Wang and ChunYun Li 857 potential myocardial and cerebral imaging agent Preparation and evaluation of [166Ho] holmium-dimethyl diethylene-Mythili A. Majali, Mita Chatterjee Debnath, 863 triaminepentaaceticacid (DMDTPA) as potential radiopharmaceutical S.K. Saxena and Sangeeta H. Joshi for endo-vascular radiation therapy (EVRT) Technical note 871 Epimerization study on [18F]FDG produced by an alkaline hydrolysis C. Mosdzianowski, C. Lemaire, F. Simoens, J. Aerts, J.-L. Morelle and A. Luxen on solid support under stringent conditions

Radioactivity and Radiation Measurements

- 877 The yields, branching ratios and angular distributions of 6-7 MeV Shengyao Ding, Kun Xu and Hongyan Wang photons produced in the 19 F(p, $\alpha\gamma$) 16 O reaction R. Sivakumar, S. Selvasekarapandian, 883 Indoor gamma dose measurements in Gudalore (India) using TLD N. Mugunthamanikandan and V.M. Raghunath P.G. Benny and B.C. Bhatt 891 High-level gamma dosimetry using phototransferred thermoluminescence in quartz S.A.J. Bäck, M. Lepage and C. Baldock 895 Investigation of the NMR relaxation rate dose-response of a ceric sulphate dosimeter 901 Radiation surveys and dose equivalent assessments for 60Co-con-Wei-Li Chen taminated rebar buildings Michael F. L'Annunziata and Charles J. Passo Jr. 907 Cherenkov counting of yttrium-90 in the dry state; correlations with phosphorus-32 Cherenkov counting data Vitaly Nagy, Sergey V. Sholom, Vadim V. Chumak 917 Uncertainties in alanine dosimetry in the therapeutic dose range and Marc F. Desrosiers J.I. Dávila Rangel, H. López del Río, 931 Radioactivity in bottled waters sold in Mexico F. Mireles Garcia, L.L. Quirino Torres, M.L. Villalba, L. Colmenero Sujo and M.E. Montero Cabrera
- I.F. Gonçalves, E. Martinho and J. Salgado

 945 Monte Carlo calculation of epithermal neutron resonance self-shielding factors in foils of different materials

neural networks

937 Explosives detection using prompt-gamma neutron activation and

W.V. Nunes, A.X. da Silva, V.R. Crispim

and R. Schirru

V.S.Y. Koo, C.W.Y. Yip, J.P.Y. Ho, D. Nikezic and K.N. Yu Technical note

A.C. Razdolescu, M. Sahagia, A. Luca, S. Bercea, C. Dumitrescu and H. Schrader

953 Sensitivity of LR115 detector in diffusion chamber to $^{222}\mbox{Rn}$ in the presence of $^{220}\mbox{Rn}$

957 Results obtained in the metrological certification of a commercially available radionuclide calibrator

Nuclear Geophysics

Dong Wenming, Zhang Hongxia, Huang Meide and Tao Zuyi

Dong Wenming, Li Weijuan and Tao Zuyi

Prem S.M. Tripathi, Kamlesh K. Mishra, Rajiv R.P. Roy and Dina N. Tewary

N. Khalil, M.A. Misdaq, S. Berrazzouk and J. Mania

H.R. Saad and D. Al-Azmi

Book reviews

K. Debertin

David M. Taylor

David M. Taylor

Events

959 Use of the ion exchange method for the determination of stability constants of trivalent metal complexes with humic and fulvic acids—Part I: Eu³⁺ and Am³⁺ complexes in weakly acidic conditions

967 Use of the ion exchange method for the determination of stability constants of trivalent metal complexes with humic and fulvic acids II.
Tb³⁺, Yb³⁺ and Gd³⁺ complexes in weakly alkaline conditions

975 Investigations on desulphurisation of some high-sulphur Indian coals by γ -ray-induced chlorinolysis

985 Characterization of the Oum Er Rbia (Morocco) high basin karstic water sources by using solid state nuclear track detectors and radon as a natural tracer

991 Radioactivity concentrations in sediments and their correlation to the coastal structure in Kuwait

999 Practical applications of radioactivity and nuclear radiations

999 Plutonium in the environment, radioactivity in the environment, Vol. 1

1001 Publications received

1003



